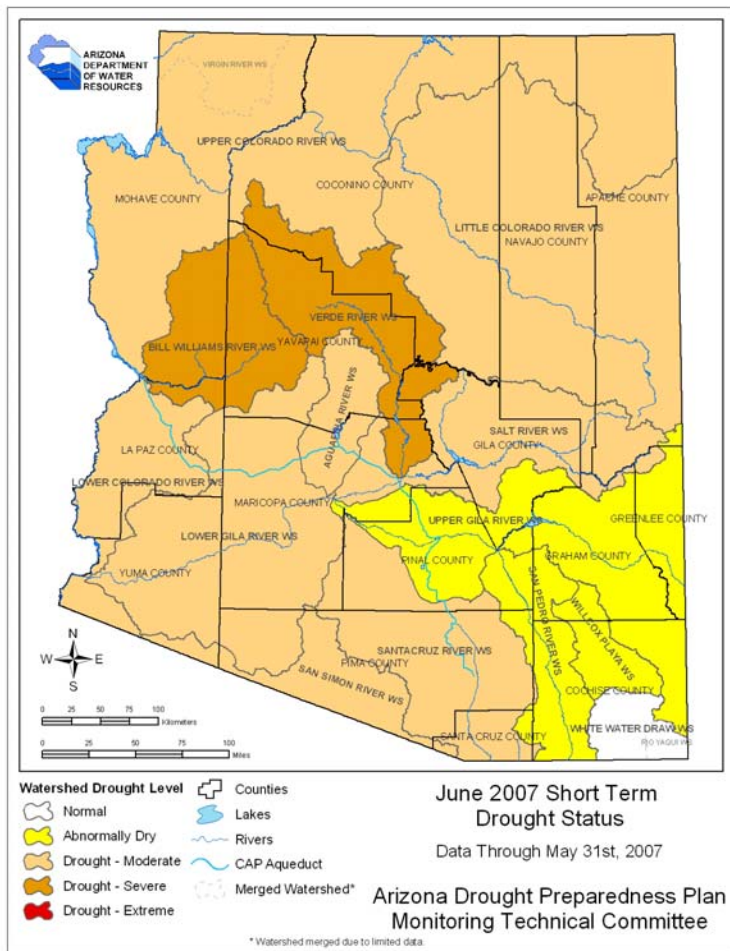


Arizona

Drought Monitor Report

June 2007

Short-term Drought Status

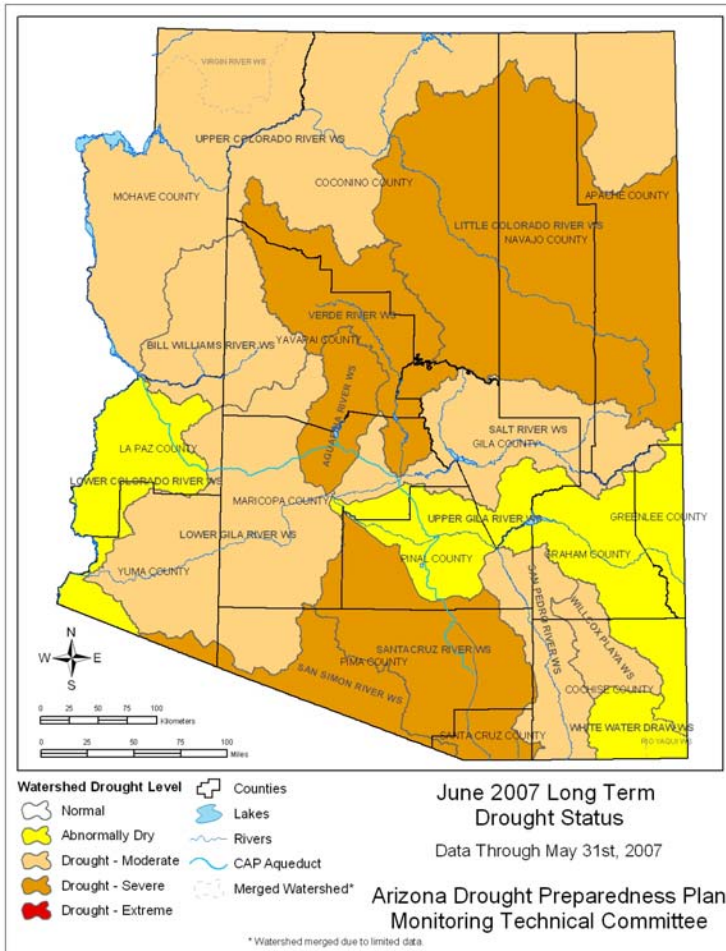


Short-term Update

Most of the state is experiencing moderate to severe drought, except the southwest where conditions are abnormally dry. Drought status is unchanged from last month. May had near normal rainfall in the north and central watersheds, and above normal rainfall in the southeast. A series of low pressure systems moved through the state during May, bringing much needed rainfall and some snow to the northern portions of the state, including 2.1 inches of rain at Window Rock and 1.57 inches of rain at the south rim of the Grand Canyon. The southeastern areas had 0.10 to 0.20 inches of rain for the month, well above their long-term average for the historically dry month of May.

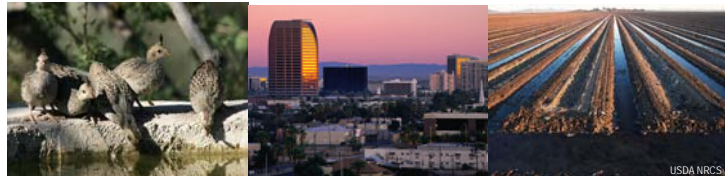


Long-term Drought Status



Long-term Update

Long-term drought status is also unchanged from last month. The shift from May-April to June-May for the 24-, 36-, and 48- month periods is generally not a significant change, as both April and May are very dry months for most of Arizona, and this year brought near normal precipitation to most of the state. The Colorado, Verde and Agua Fria watersheds in north central Arizona are in severe drought, along with the Santa Cruz and San Simon watersheds in south central Arizona. The southeast and southwest watersheds are abnormally dry. Although the U.S. seasonal drought outlook is predicting some improvement for all of Arizona through the summer monsoon season, significant improvement will only occur if the monsoon is wetter than usual.



Drought Reporter



Annual Water Use Reporting

June 1, 2007, was the due date of the first annual water use reports required from water providers outside of the Active Management Areas (AMAs). The state's AMAs (see figure below) were established to provide long-term management and conservation of limited groundwater supplies. ADWR has received water use reports from these areas for a number of years, but has never received any data from the rest of the state.



Arizona's Active Management Areas

New legislation passed in 2005 established new reporting requirements for community water systems outside AMAs and will help the state understand water usage and trends statewide. Reports include the quantity of water pumped, diverted or received from another provider, and the number of customers served. This information will enable better water use planning in the future.

Drought and Conservation Planning for Water Providers

Also part of the legislation passed in 2005 is a requirement for water providers to develop a system water plan. This plan must include a water supply plan, drought preparedness plan, and a water conservation plan. ADWR completed its review in June of nearly 200 plans submitted by the state's larger water providers (those serving more than 1,850 people). Approximately 75% of the submittals met the primary objectives of the planning requirements - a great success rate for the first year of implementation.

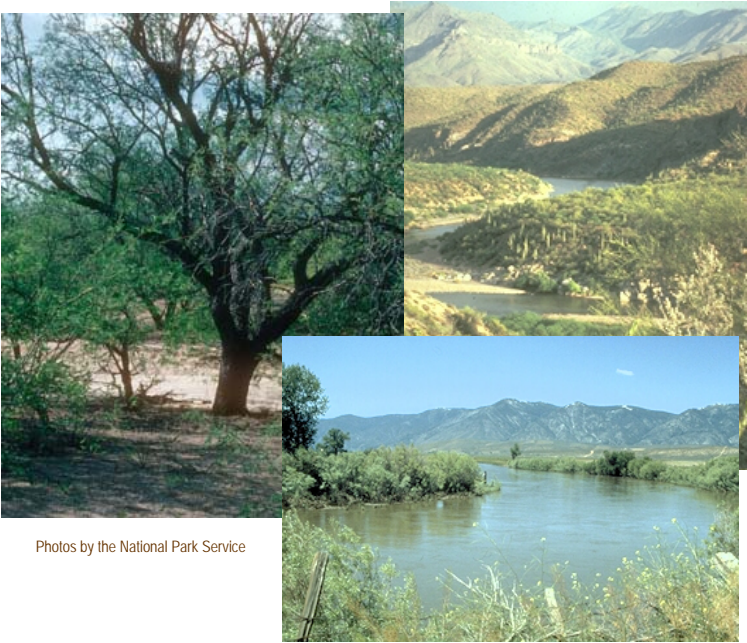
Local Drought Impact Group Update

Three county-level local drought impact groups (LDIGs) held meetings in June—Santa Cruz, the Graham/Greenlee combined group, and Yavapai County. Yavapai County's first public meeting in Cottonwood was the largest LDIG meeting since the establishment of the Statewide Drought Program, with 55 people in attendance.

Impact Reports from Yavapai County

Drought monitors report extreme dryness in the Prescott area. However, they note that cool nighttime temperatures have helped plants tolerate the lack of precipitation. Other observations:

- ♦ Rangelands between Prescott and Seligman are dry, but there is still standing feed for livestock and wildlife in most areas.
- ♦ Pronghorn in Chino Valley are thin and looking for feed in residential landscapes.
- ♦ Grasshoppers have hatched out in the Williamson Valley and Chino Valley areas and are devouring hay fields and vegetable gardens that border open spaces.
- ♦ Although enough precipitation fell in the early part of May to dampen the soil along Banning Creek in the Prescott National Forest, the warm and dry latter half of the month has dried it out again.
- ♦ The pond on Banning Creek below Goldwater Lake is almost stagnant and the water level has dropped approximately four inches over the past month.
- ♦ Grasses have turned mostly brown in the forest, except at the edge of the pond and in the riparian areas along the creek.
- ♦ Spotty bark beetle mortality has occurred in the Prescott area, but no more than would be expected during a normal year following the severe outbreaks of 2002 and 2003.
- ♦ Summer deciduous oaks have leafed out and look surprisingly healthy in most areas around Prescott.



Photos by the National Park Service

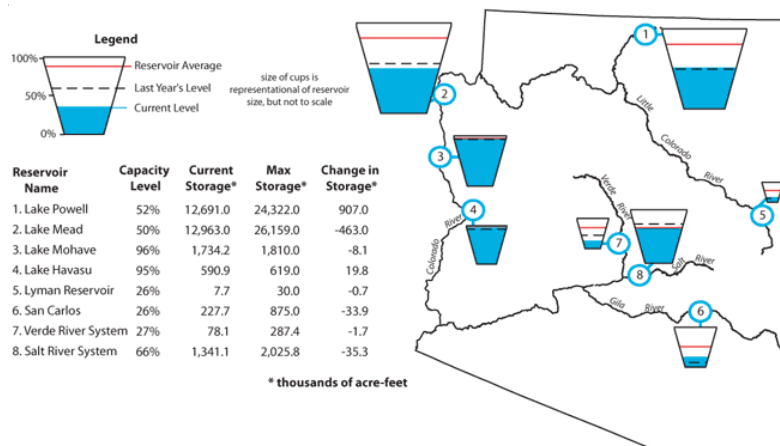
Reservoir Storage



Arizona Reservoir Status

Despite a dry spring across most of the state, May brought little change in the status of Arizona reservoir levels (see figure below). On the Colorado River, levels at Lake Mead decreased very slightly, while those at Lake Powell increased by about 4 percent of capacity level. According to Tom Ryan of the Bureau of Reclamation, the current level at Lake Powell is likely near its peak for the year, as there is very little remaining snowpack in the upper Colorado River Basin. The end of month level of 3,610.1 feet is slightly above the predicted seasonal peak of 3,606 feet. However, June inflow to Lake Powell is predicted to be much lower than average. In-state reservoir levels also remain more or less the same overall, although storage at the San Carlos Reservoir continues to fall. At 26 percent of capacity, however, the current storage level at San Carlos remains well above its lowest levels in the ongoing drought.

Arizona reservoir levels for May 2007 as a percent of capacity. The map depicts the average level and last year's storage for each reservoir, while the table also lists current and maximum storage levels.

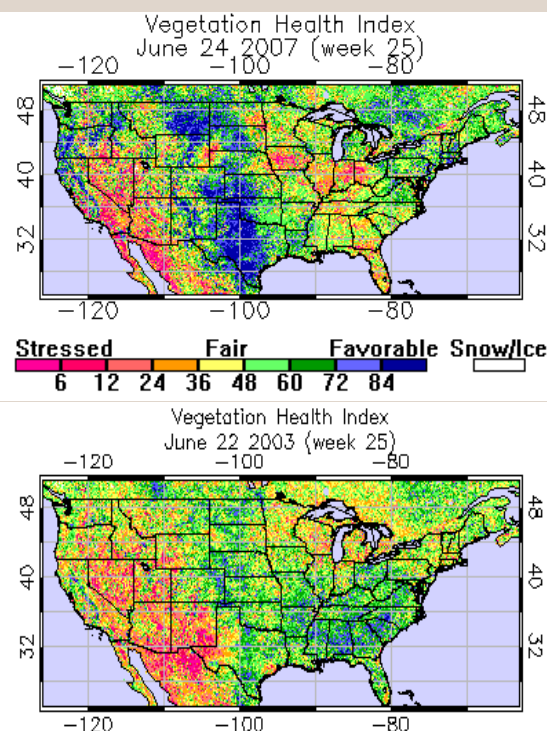


Photos by the National Park Service

Vegetation Health



The satellite-derived vegetation health index for June 24, 2007 (top figure below) shows much of the state in fair-to-stressed condition, in comparison to a 20-year average. Comparison with recent years is instructive to gauge similarities and differences in vegetation health. For example, contrasting this year with 2003 (bottom), high vegetation stress in western Arizona is apparent this year. Some of the eastern parts of the state seem like they are in better condition this year than in 2003. However, satellite imagery at this spatial resolution cannot discern vegetation type or shifts in vegetation that have occurred since 2003, and which may account for differences in vegetation health index. Fire potential is still above normal for western and southern Arizona, due to low fuel moisture – especially in grasses and shrubs.



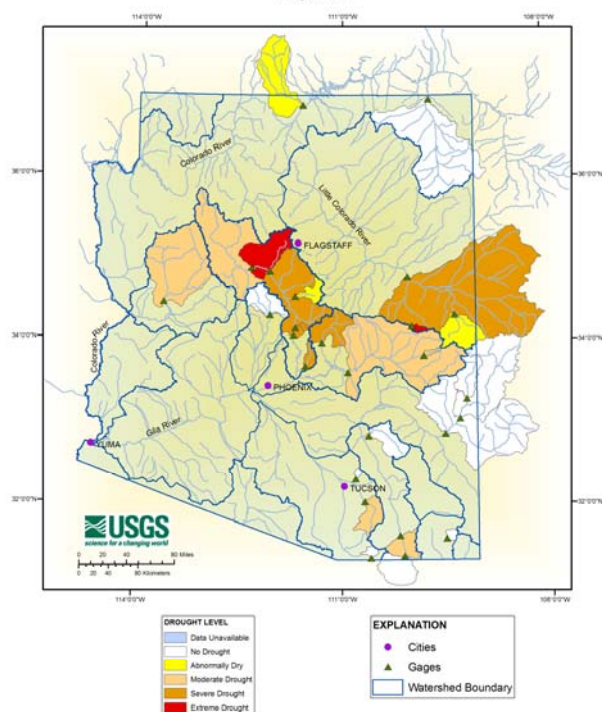
Images are obtained from the NOAA National Environmental Satellite, Data and Information Service (NESDIS).

Mountain Streamflow and Precipitation



Drought Levels Based on Monthly Streamflow Discharge

May 2007



May Streamflow

May Streamflow Observed at USGS Gauging Stations (NRCS from USGS data)

Water body	May Runoff in Acre Feet	Percent of 30-Year Median
Salt River near Roosevelt	17,022	40%
Tonto Creek	398	23%
Verde River at Horseshoe Dam	7,220	64%
Combined Inflow to Salt River Project (SRP) reservoir system	24,640	45%
Little Colorado River above Lyman Lake	376	63%
Gila River to San Carlos Reservoir	3,200	48%

January to May Runoff Summary

The January-May runoff period is important to state water users and managers because it is the time of year when the greatest cumulative streamflow volumes occur in Arizona from snowmelt. Preliminary figures indicate that snowmelt runoff into the Salt River Project (SRP) reservoir system for the period January-May 2007 was approximately 211,000 acre-feet, making it the 17th lowest on record. Last year snowmelt runoff contributed approximately 121,000 acre-feet, which is the second lowest volume recorded for this period in SRP history. The driest year was 2002 with 105,295 acre-feet. The third driest year was 1912 with 128,075 acre-feet.

Water body	Observed Run-off, January-May, in Acre Feet	Percent of 30-Year Median
Salt River near Roosevelt	141,180	36%
Tonto Creek	8,228	15%
Verde River at Horseshoe Dam	62,280	28%
San Francisco River at Clifton	42,990	61%
Gila River near Soloman	95,680	58%
San Carlos reservoir inflow	65,743	68%

Mountain Precipitation

Data from high elevation SNOTEL sites show that precipitation for May was 62 percent of average over the Salt River basin, 43 percent of average over the Verde River basin, and 110 percent of average over the San Francisco-Upper Gila River basin. The Little Colorado River basin received 60 percent of average precipitation in May.

Cumulative precipitation since October 1 remains below average in all basins, ranging from 46 percent to 82 percent of average (see table below), while river basin snowpacks were completely melted out by May 1, 2007.

Watershed	Percent (%) of 30-Yr. Average Water Year Precipitation October 1 – May 31
Salt River Basin	64%
Verde River Basin	46%
Little Colorado River Basin	62%
San Francisco-Upper Gila River Basin	82%
Other Points of Interest	
Central Mogollon Rim	62%
Grand Canyon	68%

Temperature and Precipitation



May is generally a dry month across Arizona, and this year was no exception for all but the Upper Gila and San Pedro watersheds. Most of the state had less than average precipitation. Temperatures across the state were above average, but not as far above average as in the past two months. Maximum temperatures have not been much above normal, but frequent cloudy conditions have kept minimum temperatures above average.

Three-month - Because the shift to La Niña conditions resulted in relatively dry conditions in March and April, precipitation for March through May was well below the 40th percentile for the northern half of the state. The lack of frontal storm systems also resulted in temperatures above the 88th percentile everywhere in the state.

Six-month - The precipitation map still shows the effects of the dry winter with only four watersheds in the southeast corner of the state above the 25th percentile. Temperatures were above average everywhere in the state.

12-month period - All watersheds except those in the southeast are well below average. The San Pedro, Willcox Playa, and White Water Draw watersheds in the southeast have had above average precipitation both during the 2006 summer, and the 2007 winter. Temperatures are above the 78th percentile everywhere in the state.

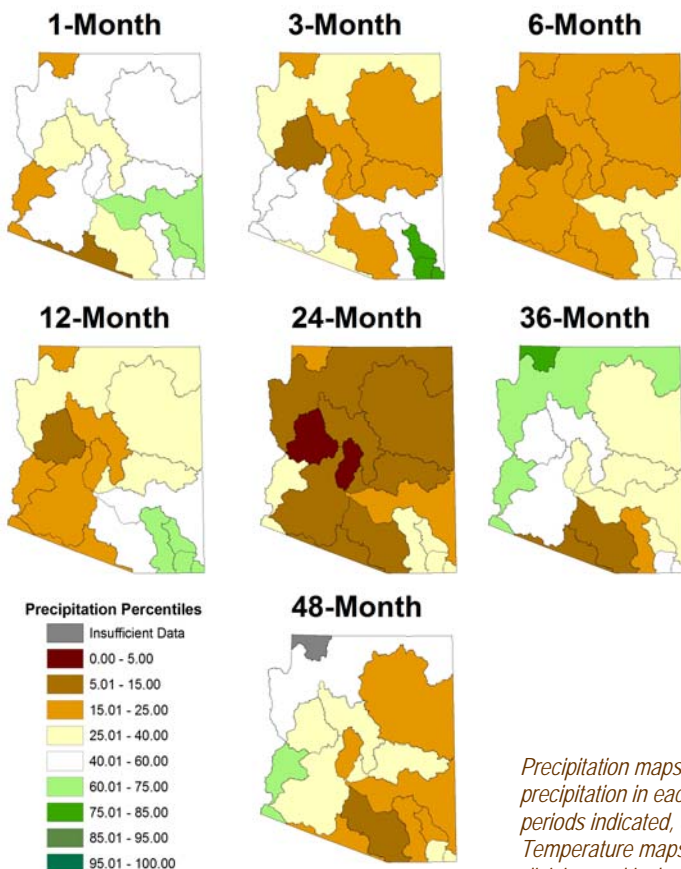
Two-year period - This period has consistently been the driest, with all watersheds receiving well below average precipitation. Nine are below the 9th percentile, and two are below the 3rd percentile. This indicates that the drought is experiencing a cyclic wet-dry regime where each phase seems to last 12 months. For temperature, again all divisions are above the 75th percentile, exacerbating the dry conditions. The southeast climate division continues to be at the 100th percentile.

Three-year period - Precipitation is well below average in the southeastern watersheds and above average for the northern and western watersheds. This period includes the wet winter of 2005. The temperature pattern has been consistent for the past five updates, with Gila County and the southeast climate division still above the 95th percentile for temperature, and all others above the 77th percentile.

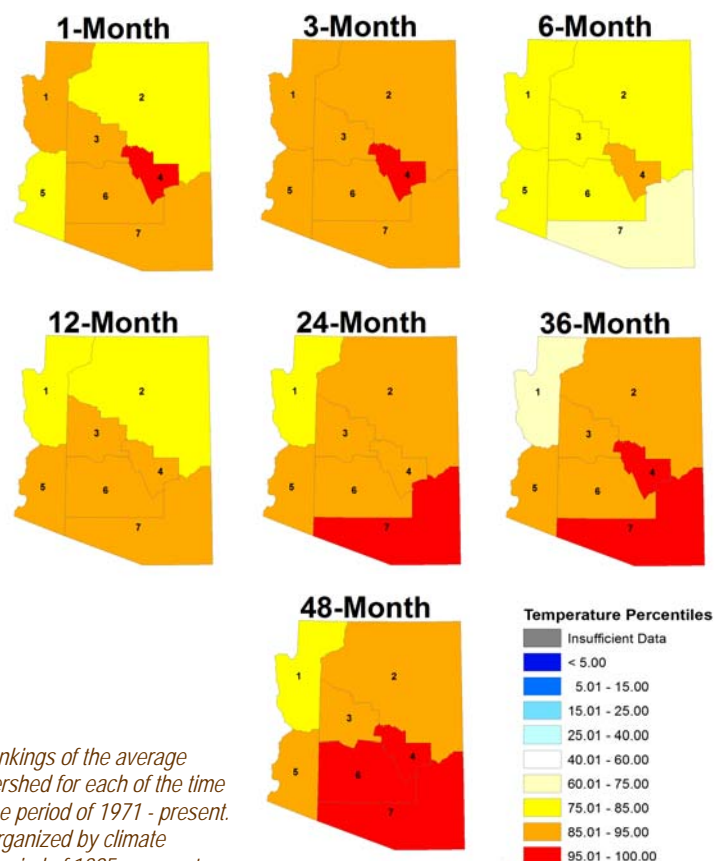
Four-year period - All watersheds except the upper and lower Colorado have had well below average precipitation. The three south central – southeast climate divisions remain above the 95th percentile for temperature, due to the three warm dry winters of 2004-2006 in this region.

For more information, visit <http://www.public.asu.edu/~aunj/Update.html>.

Precipitation Percentiles by Watershed



Temperature Percentiles by Climate Division



Precipitation maps are rankings of the average precipitation in each watershed for each of the time periods indicated, over the period of 1971 - present. Temperature maps are organized by climate division and include the period of 1895 - present.

Weather Outlook

Arizona Drought Monitor Report -
Produced by the Arizona State Drought
Monitoring Technical Committee

Co-chairs:
Gregg Garfin, University of Arizona –
Institute for the Study of Planet Earth

Tony Haffer, National Weather Service

Mike Crimmins, Extension Specialist,
University of Arizona Cooperative
Extension

Charlie Ester, Salt River Project

Larry Martinez, Natural Resources
Conservation Service

Ron Ridgway, Arizona Division of Emer-
gency Management

Nancy Selover, Asst. State Climatologist
Arizona State University

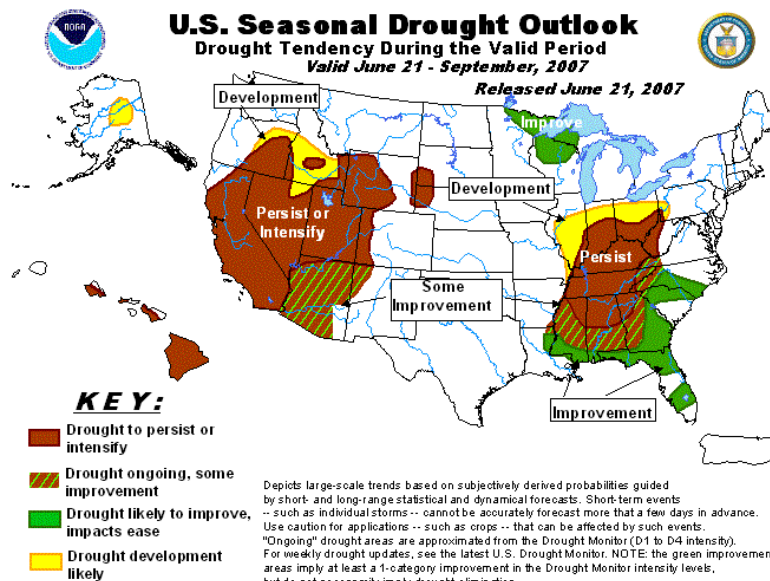
Chris Smith, U.S. Geological Survey

Coordinator: Susan Craig, Arizona
Department of Water Resources
Computer Support: Andy Fisher, Arizona
Department of Water Resources



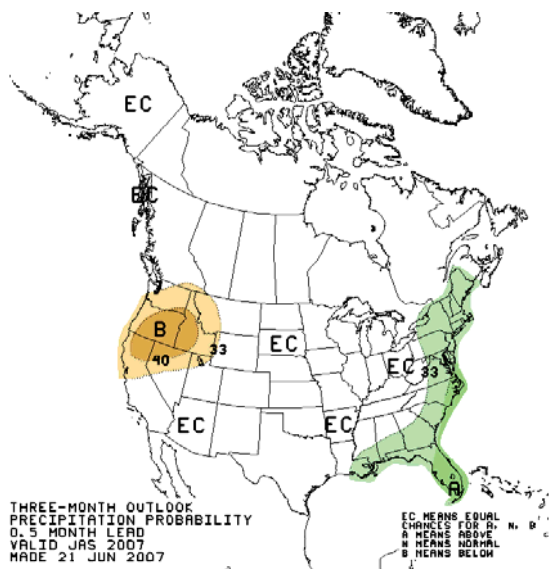
Drought Outlook

The NOAA Climate Prediction Center's Seasonal Drought Outlook indicates portions of the state may see some improvement in drought conditions resulting from rainfall in localized thunderstorms.



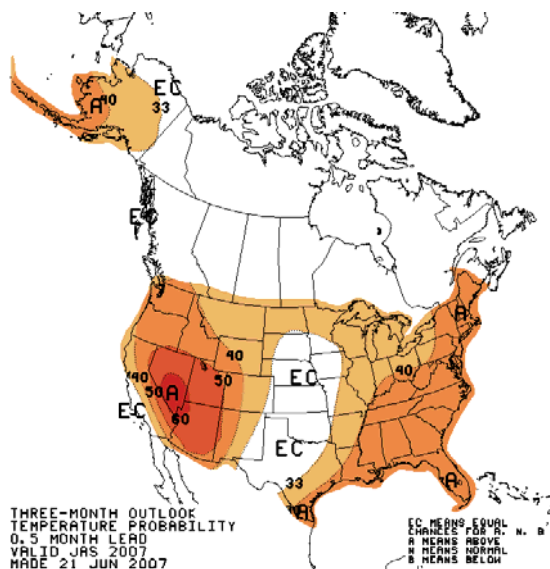
Also see the most current Southwest Climate Outlook - www.ispe.arizona.edu/climas/forecasts/swoutlook.html
For additional weather information from the Office of the State Climatologist for Arizona - <http://geography.asu.edu/azclimate>

July to September Weather Outlooks



Precipitation

Equal likelihood of above-average, average, or below-average conditions across the state during the 90-day period



Temperature

Moderate level of confidence temperatures will be above average across the entire state